

**NORTH CAROLINA DIVISION OF  
AIR QUALITY**

**Air Permit Review**

**Permit Issue Date:**

**Region:** Mooresville Regional Office  
**County:** Rowan  
**NC Facility ID:** 8000163  
**Inspector's Name:** Melinda Wolanin  
**Date of Last Inspection:** 08/03/2015  
**Compliance Code:** 3 / Compliance - inspection

<b>Facility Data</b>  <b>Applicant (Facility's Name):</b> Plant Rowan County  <b>Facility Address:</b> Plant Rowan County 5755 NC 801 Highway Salisbury, NC 28147  <b>SIC:</b> 4911 / Electric Services <b>NAICS:</b> 221112 / Fossil Fuel Electric Power Generation  <b>Facility Classification: Before:</b> Title V <b>After:</b> Title V <b>Fee Classification: Before:</b> Title V <b>After:</b> Title V				<b>Permit Applicability (this application only)</b>  <b>SIP:</b> <b>NSPS:</b> Subpart GG <b>NESHAP:</b> Subpart DDDDD <b>PSD:</b> <b>PSD Avoidance:</b> <b>NC Toxics:</b> <b>112(r):</b> <b>Other:</b>			
<b>Contact Data</b>				<b>Application Data</b>			
<b>Facility Contact</b>  Shane Short Compliance Team Leader (704) 278-6657 5755 NC Highway 801 Salisbury, NC 28144	<b>Authorized Contact</b>  Chris Lane Plant Manager (704) 278-6601 5755 NC Highway 801 Salisbury, NC 28147	<b>Technical Contact</b>  Charles Killebrew Environmental Engineer (205) 257-7002 600 North 18th Street Birmingham, AL 35291	<b>Application Number:</b> 8000163.16B <b>Date Received:</b> 02/25/2016 <b>Application Type:</b> Modification <b>Application Schedule:</b> TV-Sign-501(c)(2) Part II  <b>Existing Permit Data</b> <b>Existing Permit Number:</b> 08758/T18 <b>Existing Permit Issue Date:</b> 03/28/2016 <b>Existing Permit Expiration Date:</b> 03/31/2019				
<b>Total Actual emissions in TONS/YEAR:</b>							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2014	9.20	123.26	17.52	182.00	59.93	7.08	3.84 [Formaldehyde]
2013	6.30	109.37	16.72	175.38	58.02	9.99	6.89 [Formaldehyde]
2012	7.21	153.64	20.61	218.41	71.60	12.45	8.58 [Formaldehyde]
2011	5.91	127.96	16.74	176.64	58.17	10.05	6.93 [Formaldehyde]
2010	5.30	116.05	14.17	151.22	49.46	8.61	5.93 [Formaldehyde]
<b>Review Engineer:</b> Russell Braswell  <b>Review Engineer's Signature:</b> <b>Date:</b>				<b>Comments / Recommendations:</b> Issue 08758/T19 <b>Permit Issue Date:</b> <b>Permit Expiration Date:</b>			

## 1. Purpose of Application:

On April 4, 2015, Air Quality Permit 08758T17 was issued to Plant Rowan County (PRC). This permit was the first step of a two-step significant modification process that implemented upgrades to the peak-firing control software at the facility. Condition 2.1.B.4. requires that PRC submit a permit application within 12 months of the resumption of operations at the facility. PRC has submitted this permit application to comply with that requirement.

PRC also requested that the custom fuel monitoring plan for NSPS Subpart GG be updated to allow for vendor certification to be used.

## 2. Application Chronology:

- February 5, 2016 Application received. The application fee was only partially paid.
- February 25, 2016 The remainder of the application fee was received.
- April 6, 2016 Charles Killebrew submitted an amendment to the application. The amendment requested changes to the NSPS Subpart GG stipulations in the permit.
- April 15, 2016 An initial draft of the permit and review were sent to DAQ staff (Mark Cuilla, Tom Anderson, Samir Parekh, Denise Hayes, Melinda Wolanin) and PRC staff (Charles Killebrew). For a summary of comments received, see Attachment 3.
- XXXXXXXX Public / EPA notice
- XXXXXXXX Permit issued.

## 3. Permit Modifications/Changes:

The list of changes to the permit can be found in Attachment 1.

## 4. Regulatory Review:

- a. MACT, Subpart DDDDD "Industrial, Commercial, and Institutional Boilers and Process Heaters"

This regulation applies to all boilers located at HAP-Major facilities. PRC is considered HAP-Major, so MACT 5D applies.

The original MACT 5D was vacated by the DC Circuit Court in 2007. Due to the delay in promulgating MACT 5D, NC DAQ was forced by Section 112(j) of the Clean Air Act to create a state-only, case-by-case MACT [CBCM] in place of the vacated MACT. Currently, PRC's boilers are subject to, and are complying with, the CBCM.

EPA issued a new boiler MACT in 2010. Facilities subject to the CBCM will transition to the boiler MACT in 2019. The permit stipulation for the CBCM has the specific transition date.

Permit stipulations for MACT 5D have been added to the permit. These stipulations will become effective once the CBCM expires.

In general, the requirements of the CBCM and MACT 5D are similar. Each boiler must have a one-time energy assessment performed before the effective date of the MACT. Thereafter, each boiler must be tuned up regularly (annually for ES-6, once per five years for ES-8). Each boiler must be operated with good work practices.

Compliance with MACT 5D will be determined after the applicability date.

b. 15A NCAC 02D .0530(u) "Prevention of Significant Deterioration" [Use of Projected Actual Emissions]

As part of the .15A application and T17 permit, PRC included a demonstration that upgrade in control software would not result in an increase in emissions such that an NSR review was required.

PRC must report annual emissions from the facility for five years following the completion of the upgrade. According to Charles Killebrew, the upgrade was completed on June 1, 2015.

PRC's report for CY2015 appeared to show actual emissions in-line with the projections. PRC will be required to report annual emissions until CY2020.

c. NSPS, Subpart GG "Standards of Performance for Stationary Gas Turbines"

This regulation applies to turbines built between 1977 and 2005.

The rule requires monitoring of the sulfur content of any fuel oil used in the turbines. The regulation specifies methods of fuel sampling and testing, but also allows for custom monitoring plans. EPA released an applicability determination (control number 0000090) that stated facilities can use vendor certification in place of sampling and testing. Based on this determination, PRC requested a custom monitoring plan based primarily on vendor certification.

Paragraphs 2.1.A.2.d.vii. and 2.1.B.2.d.v. pertain to fuel oil monitoring. They will both be updated to the following:

v(ii). As per 60.334(h)(4) and the DAQ approved custom fuel monitoring schedule, for these sources (**ID Nos. Unit 1 through Unit 3**), the Permittee shall sample each tank of fuel oil to determine sulfur content after all shipments have been transferred into the tank and prior to placing the tank in service for supply to the turbines. Samples for fuel oil shall be analyzed for sulfur content in accordance with 40 CFR Part 75, Appendix D.

A. After each tank of fuel oil demonstrates initial compliance with the sulfur content limit and has been placed into service, the Permittee shall monitor the sulfur content of future fuel oil shipments by obtaining vendor certification that the sulfur content of the delivered fuel oil is lower than 8,000 ppmw.

B. If the Permittee accepts a delivery of fuel oil with a sulfur content of greater than 8,000 ppmw, the Permittee shall sample each fuel tank as required by Paragraph 2.1.A.2.d.vii, above.

d. Permit Shield for Non-Applicable Requirements.

The current permit has a permit shield for the Clean Air Interstate Rule (CAIR) and for 15A NCAC 02D .2400. Both of these rules have officially expired. Therefore, no permit shield is necessary, and the permit shield section has been removed.

## **5. Public Notice/EPA and Affected State(s) Review**

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 2Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA.

Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above.

## **6. Recommendations**

Issue permit 08758T19.

DRAFT

### Change List

Pages*	Section*	Description of Changes
Throughout	Throughout	<ul style="list-style-type: none"><li>Updated permit numbers/dates</li></ul>
	Permitted Emission Source List	<ul style="list-style-type: none"><li>Added NESHAP Subpart 5D callouts for the boilers.</li></ul>
	2.1.B.4.	<ul style="list-style-type: none"><li>Removed requirement to submit a permit application. This new permit has satisfied that requirement.</li><li>Added footnote with the date operations resumed.</li></ul>
	2.1.E.4.	<ul style="list-style-type: none"><li>Added reporting requirement because 02Q .0508(f) requires semiannual reporting of any and all monitoring.</li></ul>
	2.1.D.6. and 2.1.E.4.	<ul style="list-style-type: none"><li>Noted the date the energy assessment was completed.</li></ul>
	2.1.D.7. and 2.1.E.5.	<ul style="list-style-type: none"><li>Added permit requirements for NESHAP Subpart 5D. The facility must comply with these requirements starting May 19, 2019.</li></ul>
	2.4.	<ul style="list-style-type: none"><li>Removed the section for non-applicable requirements because 02D .2400 has officially expired.</li></ul>

## T17 permit review

(Application 8000163.15A, Ed Martin, April 24, 2015)

### I. Purpose of Application

To avoid applicability of prevention of significant deterioration (PSD) requirements and nonattainment new source review (NAA NSR), Southern Power Company (SPC), notified DAQ, in a letter received December 3, 2014, as required by 15A NCAC 2D .0530(u) and 15A NCAC 2D .0531(n), of a proposed peak fire software update modification to Units 4 and 5. This is part of a system-wide effort to upgrade the software on all SPC's units to begin in April 2015 at Plant Rowan. The update is a revision to the code for the firing mode software that will allow for small increases in firing temperature and will result in an increase in turbine efficiency. SPC stated that they did not believe the change would be a physical change or change in the method of operation and therefore would not be a major modification under PSD. However, SPC did provide calculations showing there would not be a significant emissions increase based on actual-to-projected-actual emissions. Also, SPC stated that if NCDENR considered that a permit change is required, that their letter and attached 502(b)(10) Notification Form serve as a 502(b)(10) application. DAQ notified SPC in a letter dated February 5, 2015, that the proposed software upgrade would be considered to be a change in the method of operation that could potentially be a major modification and would, at a minimum, require five years of reporting following completion of the upgrade to demonstrate that PSD requirements do not apply, as specified under 15A NCAC 2D .0530(u). DAQ further stated that the permit change could be made as a minor Title V modification, assuming it was not a major PSD modification. DAQ later notified SPC that the Permitting Section had decided that it was not appropriate to process the proposed change as a minor permit modification and would need to be a significant two-step modification in accordance with 2Q .0501(c)(2) (unless SPC wanted to go through public notice at this time as a one-step modification with public notice at this time – which they do not). The reason this change is considered to be a significant permit modification is that, as specified in 2Q .0516(b)(2), significant modifications include modifications that require or change a case-by-case determination of an emissions limitation or other standard. In this case, the change is a case-by-case determination that PSD and the associated emission limits do not apply and can be avoided under the 2D .0530(u) reporting requirement. SPC submitted an application for the change, as a significant modification, received March 18, 2015. Public notice will be required during the second step of the 2Q .0501(c)(2) application to be filed within 12 months after commencing operation of the software update modification.

Also, the PSD/NSR avoidance five-year (minimum) reporting conditions for the inlet air foggers replacement project on Units 4 and 5 in Sections 2.1.B.4 and 5 were removed, as requested by the facility. These conditions were added to the permit in T12 on January 6, 2009, and the required reporting has now been completed as follows according to the IBeam CMPL- Actions/reporting module:

<u>Year</u>	<u>Date Due</u>	<u>Date Received</u>	<u>Result</u>
1	3/1/2010	2/23/2010	Compliance
2	3/1/2011	2/21/2011	Compliance
3	3/1/2012	2/22/2012	Compliance
4	3/1/2013	2/20/2013	Compliance
5	3/1/2014	2/18/2014	Compliance
6	3/1/2015	2/25/2015	Compliance

### II. Permit Changes

The following table lists the changes associated with this permit action:

<b>Page</b>	<b>Section</b>	<b>Description of Changes</b>
cover		Amended permit numbers and dates.

Page	Section	Description of Changes
13	Section 2.1.B regulation table	Removed 15A NCAC 2D .0530(u) for Nitrogen oxides (as NO <sub>2</sub> ), PM and PM <sub>10</sub> .
14		Added 15A NCAC 2D .0530(u) for Nitrogen oxides, Carbon monoxide, Volatile organic compounds, Particulates, PM <sub>10</sub> , PM <sub>2.5</sub> , and Sulfur dioxide.  Removed 15A NCAC 2D .0531(o) for Nitrogen oxides.
21-22 old pages	Section 2.1.B.4	Removed this condition.
22-23 old pages	Section 2.1.B.5	Removed this condition.
21-22	Section 2.1.B.4	Added this condition for 15A NCAC 2D .0530(u) for Nitrogen oxides, Carbon monoxide, Volatile organic compounds, Particulates, PM <sub>10</sub> , PM <sub>2.5</sub> , and Sulfur dioxide.

### III. Facility Description

Southern Power Company (Southern Power) operates an electric power production facility at Plant Rowan. The facility has been classified under the Standard Industrial Classification (SIC) code 4911 "Electric Services. The existing operations at the facility comprise three natural gas/No. 2 fuel oil-fired simple-cycle combustion turbines, one natural gas/No. 2 fuel oil-fired combined-cycle combustion turbine, one natural gas-fired combined-cycle combustion turbine, one auxiliary boiler, two fuel oil storage tanks, one cooling tower, and several insignificant emission sources.

### IV. Regulatory Evaluation

The facility is located in Salisbury Township, Rowan County, which is designated as nonattainment for ozone NAAQS (ref. 40 CFR 81.334); therefore, rule 15A NCAC 2D .0530(u) applies for PSD and rule 15A NCAC 2D .0531(n) applies for NAA NSR. NO<sub>x</sub> and VOC are deemed as precursors for ozone.

SPC has conducted an actual-to-projected actual emissions test for existing units to determine whether the software update results in a significant emissions increase under NSR. Under 40 CFR 51.166(r)(6) and 15A NCAC 2D .0530(u)/2D .0531(n), for projects at existing emissions units at a major stationary source, the owner or operator may elect to use projected actual emissions (as opposed to potential emissions) in accordance with 40 CFR 51.166(r)(6)(vi) to show whether there is a reasonable possibility that the project that is not part of a major modification may result in a significant emissions increase (as defined by 40 CFR 40 51.166(b)(23)) of any regulated NSR pollutant.

As required by 15A NCAC 2D .0530, baseline actual emissions are calculated as the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the five year period immediately preceding the date that a complete permit application is received. And, as required by 40 CFR 40 51.166(b)(40), projected actual emissions means the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated NSR pollutant in any one of the 5 years (12-month period) following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit that regulated NSR pollutant. SPC states that there is no physical modification and the project will not affect the design capacity or potential to emit of the units.

SPC determined baseline actual emissions for SO<sub>2</sub>, VOCs, CO, PM, PM<sub>10</sub>, and PM<sub>2.5</sub> based on the consecutive 24-month period from February 2012 to January 2014; and determined baseline actual

emissions for NO<sub>x</sub> based on the consecutive 24-month period from March 2011 to February 2013. NO<sub>x</sub> emissions are based on CEMS and heat input data as shown in Table 1. Emissions of other pollutants are conservatively based on permitted emission rates for natural gas and AP-42 natural gas emission factors. While Unit 4 burned a small amount of fuel oil during the baseline period, the natural gas emission factors conservatively result in lower baseline emissions. Unit 5 is permitted to burn only natural gas.

**Table 1- NO<sub>x</sub> CEMS Emissions and Heat Input Data**

Year	Month	Rowan 4		Rowan 5		Combined	
		NO <sub>x</sub> (tons)	Heat Input (mmBtu)	NO <sub>x</sub> (tons)	Heat Input (mmBtu)	NO <sub>x</sub> (tons)	Heat Input (mmBtu)
2009	1	0.224	1306.9	0.011	150.3	0.235	1457.2
2009	2	0.934	81014.7	1.012	105930.1	1.946	186944.8
2009	3	0.656	94737.8	0.263	8440.7	0.919	103178.5
2009	4	0.263	8761.0	0.59	43019.2	0.853	51780.2
2009	5	2.543	272076.8	2.327	252109.5	4.87	524186.3
2009	6	5.321	600227.2	5.313	611728.4	10.634	1211955.6
2009	7	5.979	723610.7	6.236	730447.5	12.215	1454058.2
2009	8	5.459	598866.9	5.069	596309.3	10.528	1195176.2
2009	9	1.314	135665.5	4.018	429465.9	5.332	565131.4
2009	10	0.613	47075.8	3.177	290252.4	3.79	337328.2
2009	11	0.277	4133.7	0	0.0	0.277	4133.7
2009	12	1.268	117640.7	1.435	118891.3	2.703	236532.1
2010	1	2.443	494907.8	2.955	548368.3	5.398	1043276.1
2010	2	1.433	261055.5	1.739	290502.5	3.172	551558.0
2010	3	1.029	162412.1	1.489	216851.3	2.518	379263.4
2010	4	1.848	236617.9	1.923	257282.1	3.771	493900.0
2010	5	2.433	487350.8	2.427	311589.3	4.86	798940.1
2010	6	4.434	933484.7	5.139	880421.6	9.573	1813906.3
2010	7	4.378	1084653.8	5.279	756948.6	9.657	1841602.4
2010	8	4.775	1083031.0	4.877	667209.7	9.652	1750240.7
2010	9	4.039	606558.4	4.57	863621.2	8.609	1470179.7
2010	10	3.748	789919.9	3.993	827259.1	7.741	1617179.0
2010	11	2.701	408949.1	2.271	373048.7	4.972	781997.8
2010	12	4.039	765577.3	3.353	660529.8	7.392	1426107.1
2011	1	4.496	866397.1	4.199	858384.7	8.695	1724781.9
2011	2	3.571	675738.4	3.265	615130.4	6.836	1290868.8
2011	3	4.001	472003.1	4.798	1024637.7	8.799	1496640.8
2011	4	2.888	413548.7	3.187	505739.2	6.075	919287.8
2011	5	4.348	615466.9	5.701	683002.8	10.049	1298469.6
2011	6	4.835	845000.6	5.181	814174.8	10.016	1659175.5
2011	7	4.895	967314.0	5.043	843779.0	9.938	1811093.0
2011	8	4.422	869581.5	5.001	754756.5	9.423	1624337.9
2011	9	5.208	722192.1	5.608	688312.3	10.816	1410504.4
2011	10	6.583	820298.0	5.954	768544.1	12.537	1588842.1



Attachment 2, cont., to review of application 8000163.16B  
Plant Rowan County

Year	Month	Rowan 4		Rowan 5		Combined	
		NOx (tons)	Heat Input (mmBtu)	NOx (tons)	Heat Input (mmBtu)	NOx (tons)	Heat Input (mmBtu)
2011	11	3.898	819466.8	4.027	799036.0	7.925	1618502.8
2011	12	4.053	752131.4	4.271	809736.4	8.324	1561867.8
2012	1	4.738	965377.0	4.599	955847.4	9.337	1921224.4
2012	2	4.763	1073962.1	4.75	1062523.1	9.513	2136485.2
2012	3	3.61	721189.3	3.632	721141.3	7.242	1442330.6
2012	4	5.078	1132605.3	5.124	1110143.0	10.202	2242748.3
2012	5	5.082	1082539.7	5.422	908609.1	10.504	1991148.8
2012	6	5.315	975976.3	5.569	831142.1	10.884	1807118.5
2012	7	5.282	1002964.3	5.201	1039360.0	10.483	2042324.4
2012	8	5.286	1028190.8	5.21	825100.2	10.496	1853291.0
2012	9	5.407	920125.2	5.378	919873.3	10.785	1839998.5
2012	10	4.442	743043.2	4.4	737409.6	8.842	1480452.7
2012	11	2.899	475242.2	4.33	879249.7	7.229	1354491.9
2012	12	5.073	771102.8	5.185	1142060.3	10.258	1913163.1
2013	1	5.047	909834.8	4.213	795492.3	9.26	1705327.1
2013	2	4.159	879213.3	4.791	998634.4	8.95	1877847.7
2013	3	4.843	1048716.1	2.419	536009.9	7.262	1584726.0
2013	4	1.934	371296.6	2.511	404589.2	4.445	775885.8
2013	5	5.043	958918.6	3.858	619557.9	8.901	1578476.5
2013	6	4.665	809250.6	4.683	854032.3	9.348	1663282.9
2013	7	5.291	936624.7	5.312	943714.5	10.603	1880339.2
2013	8	4.995	646601.1	4.788	1046632.1	9.783	1693233.2
2013	9	4.34	801109.7	5.449	825337.1	9.789	1626446.8
2013	10	5.462	928437.2	5.516	947321.5	10.978	1875758.6
2013	11	3.93	790077.0	3.306	553325.2	7.236	1343402.2
2013	12	4.868	856533.0	4.679	854169.5	9.547	1710702.4
2014	1	4.983	1123677.9	4.855	961805.5	9.838	2085483.5
2014	2	4.361	862991.5	4.29	887143.9	8.651	1750135.5
2014	3	2.029	426120.6	4.693	1039356.3	6.722	1465476.8
2014	4	1.141	139489.6	1.134	160753.5	2.275	300243.1
2014	5	4.712	1010067.2	0	0.0	4.712	1010067.2
2014	6	4.941	1011302.1	10.24	425337.2	15.181	1436639.3
2014	7	5.401	935560.1	4.862	807218.4	10.263	1742778.5
2014	8	5.211	929208.4	5.593	979813.0	10.804	1909021.4
2014	9	5.242	1008098.7	5.538	900834.9	10.78	1908933.5
2014	10	5.231	814752.1	4.774	1023097.0	10.005	1837849.1
2014	11	5.078	1002356.4	4.917	1065170.7	9.995	2067527.1
2014	12	5.302	1139569.5	4.783	966089.8	10.085	2105659.2
Annual Average		Baseline heat input and emissions for NOx March 2011 - February 2013				<b>113.94</b>	<b>20298337</b>

Year	Month	Rowan 4		Rowan 5		Combined	
		NOx (tons)	Heat Input (mmBtu)	NOx (tons)	Heat Input (mmBtu)	NOx (tons)	Heat Input (mmBtu)
		Baseline heat input for SO <sub>2</sub> , VOCs, CO, PM, PM <sub>10</sub> , and PM <sub>2.5</sub> February 2012 - January 2014					20752232

#### Baseline Actual Emissions

Baseline actual emissions are determined as follows:

**Table 2 - Baseline Actual Emissions (total Units 4 and 5)**

Pollutant	Baseline Heat Input (mmBtu annualized)	Emissions Rate (lb/mmBtu)	Baseline Actual Emissions (tpy)
NO <sub>x</sub>	20,298,337	0.01122*	113.9
CO	20,752,232	0.018	186.8
VOC	20,752,232	0.00172	17.8
PM	20,752,232	0.0055	57.1
PM <sub>10</sub>	20,752,232	0.0102	105.8
PM <sub>2.5</sub>	20,752,232	0.0102	105.8
SO <sub>2</sub>	20,752,232	0.0006	6.2

\* From bottom of Table 1: 113.94 tons x 2000 lb/ton /20298337 mmBtu = 0.01122 lb/mmBtu

See footnotes to Table 5 for emissions of Pb, H<sub>2</sub>SO<sub>4</sub> and GHGs.

#### Unadjusted Projected Actual Emissions

Projected actual emissions as shown in Table 3 are based on the highest annual rate in any one of the 5 years (12-month period) following the date the unit resumes regular operation after the software update. The units are expected to resume regular operation in April 2015. The highest annual heat input was determined to be 22,823,728 mmBtu (average each unit). This is based on a five-year analysis of SPC's dispatching model adjusted to account for the project (that is, including demand growth). Note, only a five-year analysis rather than a 10-year analysis is needed because the project will not change the design capacity or the potential to emit of the unit. This 12-month high period is projected to be from May 2017 through April 2018. During the five-year period following the software update, no fuel oil is projected to be utilized and fewer startups and shutdowns than the in the baseline period are projected. Therefore, because the project will not affect emissions rates on a lb/mmBtu basis, this highest period of heat input will also be the highest period of emissions, and the same lb/mmBtu emission rates used to calculate baseline emissions can also be used to predict the projected actual emissions, as shown in Table 3.

**Table 3 - Unadjusted Projected Actual Emissions (total Units 4 and 5)**

Pollutant	Projected High Heat Input(mmBtu)	Emissions Rate (lbs/mmBtu)	Unadjusted Projected Emissions (tpy)
NO <sub>x</sub>	22,823,728	0.011	128.1
CO	22,823,728	0.018	205.4
VOC	22,823,728	0.00172	19.6
PM	22,823,728	0.0055	62.8
PM <sub>10</sub>	22,823,728	0.0102	116.4
PM <sub>2.5</sub>	22,823,728	0.0102	116.4
SO <sub>2</sub>	22,823,728	0.0006	6.8

#### Change in Emissions

Baseline actual emissions and unadjusted projected actual emissions are compared in Table 4 to determine whether an emissions increase is expected to occur after the software update is completed. The unadjusted

projected actual emissions include “demand growth” emissions unrelated to the software update. These calculations show that the emissions of all pollutants are projected to increase during the period following the software update. The increase in every pollutant except PM<sub>2.5</sub> is projected to be less than the significance threshold even without excluding demand growth emissions unrelated to the project; therefore, the software update will not result in a significant emissions increase for NO<sub>x</sub>, CO, VOC, PM, PM<sub>10</sub>, or SO<sub>2</sub>. However, for PM<sub>2.5</sub>, demand growth emissions must be excluded from projected actual emissions to determine projected actual emissions. As specified in 40 CFR §51.166(b)(40)(ii)(c), in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project, including any increased utilization due to product demand growth, shall be excluded.

#### Demand Growth for PM<sub>2.5</sub>

SPC determined that, even if the project is not performed, the projected level of annual heat input (12-month period) will rise to a high of 22,421,015 mmBtu within the next five years. Accordingly, the projected emissions increases will occur even without the software update resulting in the demand growth unrelated to the project:

**Table 4 – Demand Growth for PM<sub>2.5</sub> (total Units 4 and 5)**

Pollutant	Projected High 12-month Heat Input (mmBtu)	Emissions Rate (lb/mmBtu)	Projected Emissions without the Software Update (tpy)	Baseline Emissions (tpy)	Demand Growth Emissions (tpy)
PM <sub>2.5</sub>	22,421,015	0.0102	114.3	105.8	+8.5

Because emissions are projected to increase by 8.5 tons even without the project, Plant Rowan is currently capable of accommodating that projected increase and the increase is unrelated to the project.

#### Projected Actual Emissions for PM<sub>2.5</sub>

Once the demand growth emissions are excluded, the projected actual emissions after the software update are:

$$\begin{aligned}
 \text{Projected Actual Emissions} &= \text{Unadjusted Projected Actual Emissions} - \text{Demand Growth} \\
 &= 116.4 \text{ tpy} - 8.5 \text{ tpy} \\
 &= \mathbf{107.9 \text{ tpy}}
 \end{aligned}$$

And the increase attributed to the project will be:

$$\begin{aligned}
 \text{Increase Attributed to the Project} &= \text{Projected Actual Emissions} - \text{Baseline Emissions} \\
 &= 107.9 \text{ tpy} - 105.8 \text{ tpy} \\
 &= \mathbf{2.1 \text{ tpy}}
 \end{aligned}$$

Table 5 summarizes the emissions. Comparing the 2.1 tpy increase to the PM<sub>2.5</sub> significant threshold of 10 tpy shows that the project will also (in addition to the other pollutants) not result in a significant emissions increase and therefore the project does not trigger PSD or NAA NSR permitting for any pollutant.

**Table 5 - Summary of Emissions (total Units 4 and 5)**

	NSR Applicability Analysis (tpy)									
	NO <sub>x</sub>	CO	VOC	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	Pb <sup>1</sup>	H <sub>2</sub> SO <sub>4</sub> <sup>2</sup>	GHG <sup>3</sup>
Baseline Actual Emissions	113.9	186.8	17.8	57.1	105.8	105.8	6.2	--	--	--

	NSR Applicability Analysis (tpy)									
	NO <sub>x</sub>	CO	VOC	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	Pb <sup>1</sup>	H <sub>2</sub> SO <sub>4</sub> <sup>2</sup>	GHG <sup>3</sup>
Unadjusted Projected Actual Emissions	128.1	205.4	19.6	62.8	116.4	116.4	6.8	--	--	--
Change in Emissions – unadjusted for demand growth <sup>4</sup>	14.2	18.6	1.8	5.7	10.6	10.6	0.6	--	--	--
PSD/NSR Significance Threshold	40	100	40	25	15	10	40	--	--	--
PSD/NSR Significance Threshold Exceeded <sup>4</sup> (Y/N)	No	No	No	No	No	Yes	No	--	--	--
Demand Growth	NA	NA	NA	NA	NA	8.5 <sup>5</sup>	NA	--	--	--
Projected Actual Emissions	NA	NA	NA	NA	NA	107.9	NA			
Increase Attributed to the Project	NA	NA	NA	NA	NA	2.1	NA	--	--	--
NSR Applies (Y/N)	No	No	No	No	No	No	No	No	No	No

- 1 Natural gas has negligible lead content. AP-42 Table 3.1-2a shows “No Data” for natural gas fired turbines.
- 2 H<sub>2</sub>SO<sub>4</sub> emissions are a small fraction of SO<sub>2</sub> emissions. Natural gas-fired sources typically have negligible content of sulfur in the fuel, thus sulfuric acid production is negligible according to *Estimating Total Sulfuric Acid Emissions from Stationary Power Plants*. EPRI, Palo Alto, CA: 2012. 1023790.
- 3 GHGs were not evaluated since the modification would not result in a significant emissions increase of any other pollutant, and PSD/NSR GHGs alone do not trigger in accordance with the Supreme Court’s decision in *Utility Air Regulatory Group v EPA* (2014).
- 4 Emissions changes are prior to excluding demand growth emissions unrelated to the software update when comparing to thresholds.
- 5 From Table 4.

#### Recordkeeping and Reporting

Because SPC has used projected actual emissions to avoid applicability of PSD, recordkeeping and reporting will be required for NO<sub>x</sub>, CO, VOC, PM, PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> under 2D .0530(u) to demonstrate that the project does not result in a significant emissions increase for any of these pollutants.

SPC will be required to maintain records of annual emissions in tons per year, on a calendar year basis related to the modification, for five years following resumption of regular operations after the change. The information for which records must be kept must be made available to DAQ or the general public pursuant to the requirements in 40 CFR 70.4(b)(3)(viii), and emissions must be reported within 60 days after the end of each calendar year during which the records must be kept. The reported actual emissions (post-construction emissions, including any demand growth) for each of the five calendar years will be compared to the following projected actual emissions (pre-construction projection, including any demand growth) as included in the Plant Rowan County permit application 8000163.15A. These requirements are placed in the permit at condition 2.1.B.4.

Note, noncompliance statements should be added to the new 2.1.B.4 condition when the second step of the 2Q .0501(c)(2) Title V process is completed.

#### **V. Public Notice**

Public notice is not required at this time.

#### **VI. Other Requirements**

##### PE Seal

NA. No controls are being added.

Zoning

There is no expansion of the facility, therefore zoning consistency is not needed.

Fee Classification

The facility fee classification before and after this modification will remain as "Title V".

**VII. Recommendations**

The draft permit was sent to Mr. Charles Killebrew with Southern Power on April 13, 2015 for review. The following comments were received in an email from Mr. Killebrew on April 17, 2015:

1. The evaporative cooler project was completed more than five years ago, and the conditions requiring PSD reporting for the project only required annual reporting for five years. If possible, please remove the conditions requiring PSD reporting for the evaporative cooler project (Section 2.1.B.4-.5).

DAQ Response

These conditions were removed as discussed in Section 1.

2. In order to be consistent with the requirements of 2D .0530, new permit condition 2.1.B.6.b should be revised to clarify that the recordkeeping/reporting requirement is for the emissions "related to the modification."

DAQ Response

The language was modified accordingly, even though it was clear that the entire condition is "related to the modification" so there is no meaningful change.

The draft permit was sent to Melinda Wolanin at MRO and Samir Parekh with SSCB on April 13, 2015. No comments were received.

Issuance is recommended.

### Summary of Comments Received on Initial Draft

- Mark Cuilla, by email on April 18, 2016

1. Mark pointed out typos in the permit cover letter.

*Response: These have been fixed.*

- Charles Killebrew, by email on May 12, 2016

1. Charles pointed out that the draft permit conditions for MACT Subpart DDDDD referenced "40 CFR 63.7555(i)", which does not exist.

*Response: I agree that .7555(i) does not exist in the current rule. In the draft permit, the paragraph with this citation required recordkeeping for startup and shutdown events. This requirement appears in 40 CFR 63.7555(d)(9) and (10), which do not apply to "gas 1"-fired boilers. Therefore, I have removed it from the permit.*

2. Charles made a correction in the draft review: the software upgrade at the facility was for "peak firing", not "peak shaving".

*Response: Fixed.*

3. Charles pointed out that the permit conditions for MACT Subpart DDDDD referenced incorrect compliance dates. All compliance dates should begin in 2019.

*Response: Fixed.*